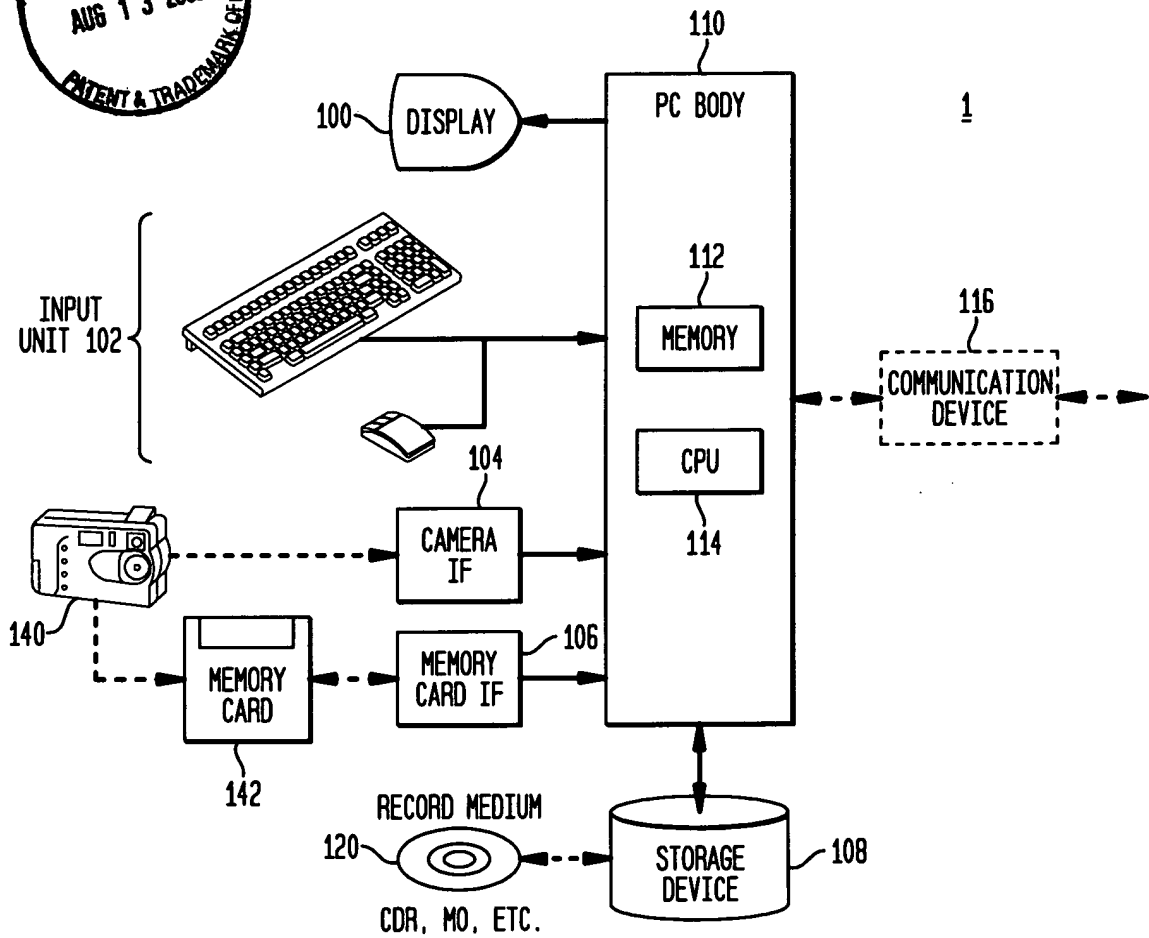




FIG. 1



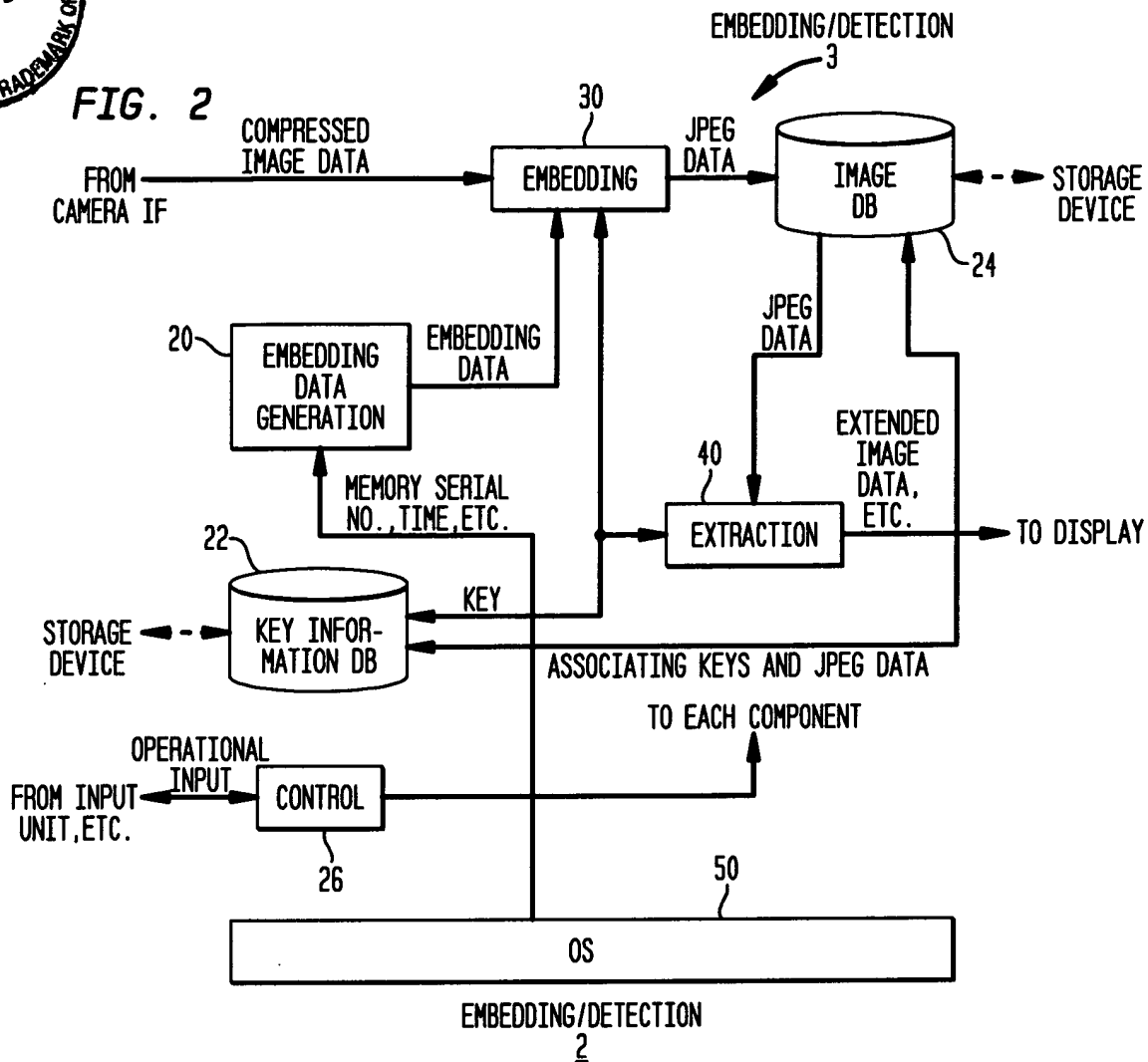


FIG. 5

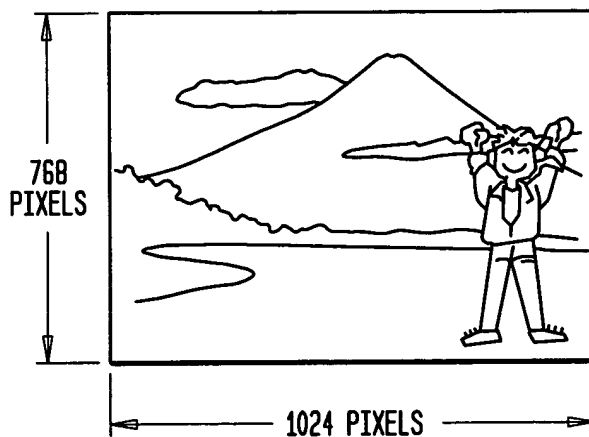




FIG. 3

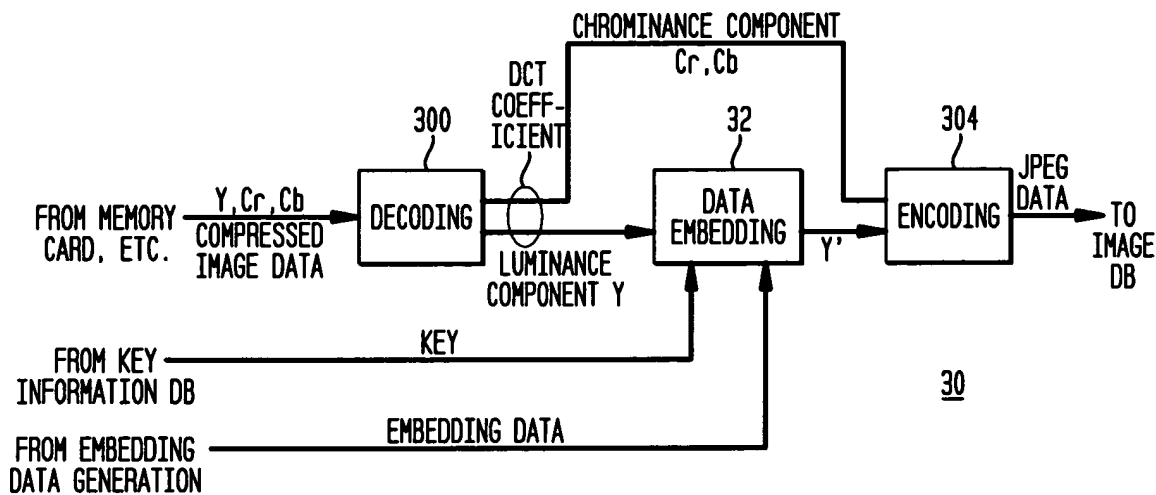
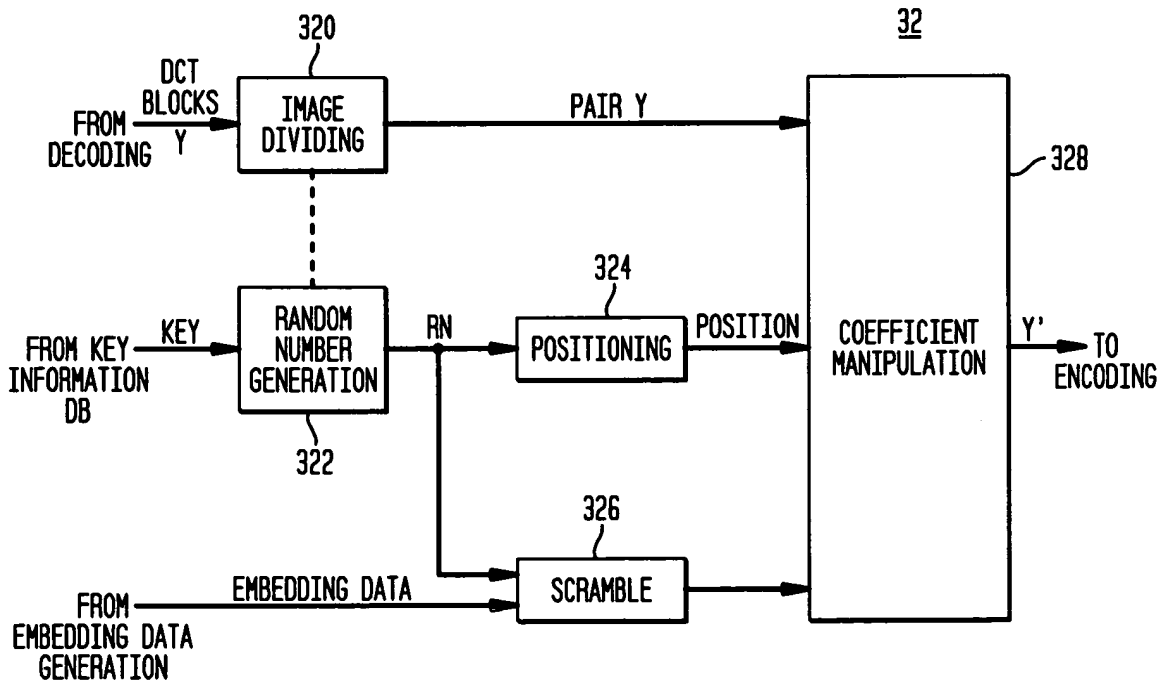


FIG. 4





4/24
JP9-1999-0060-US1

FIG. 6A

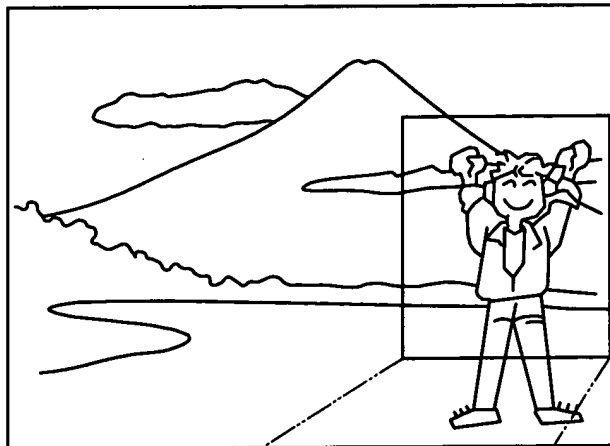


FIG. 6B



FIG. 6C

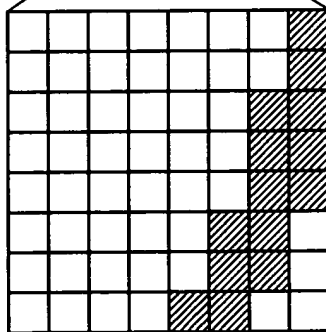




FIG. 7

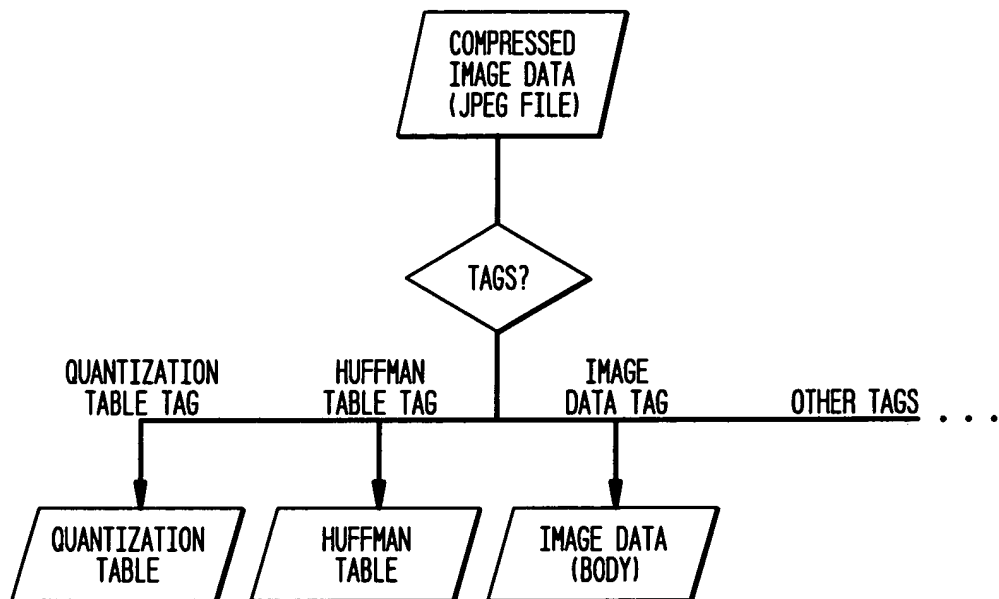


FIG. 8

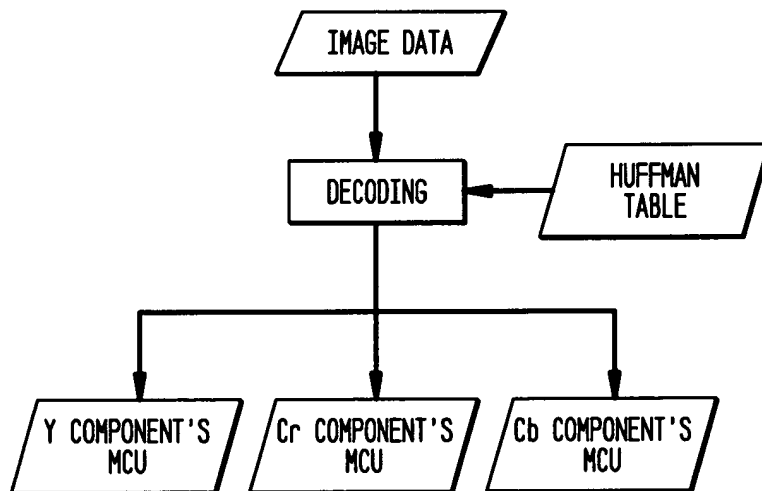




FIG. 9A

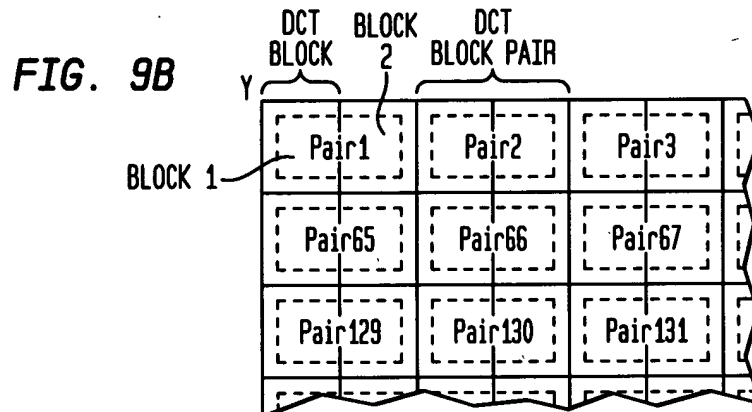
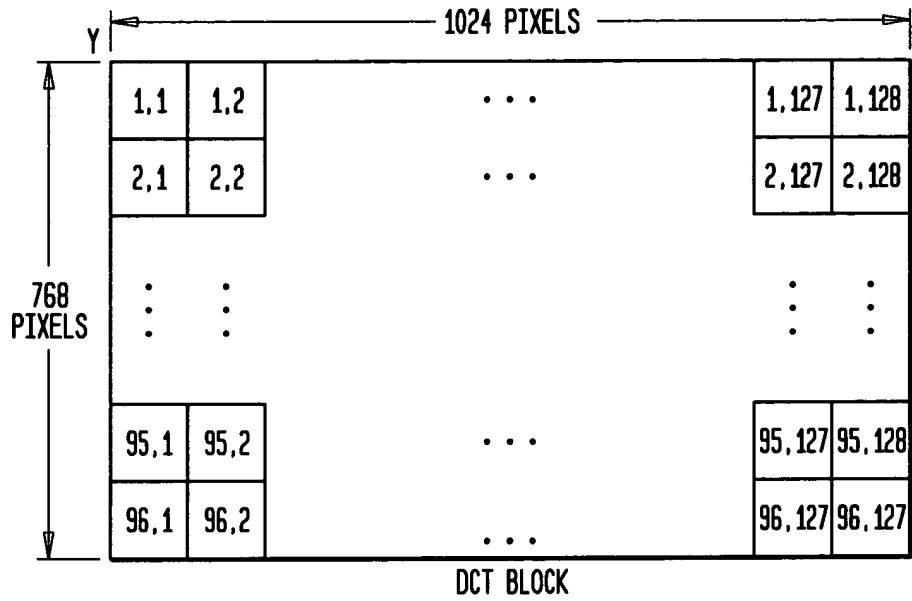


FIG. 9C

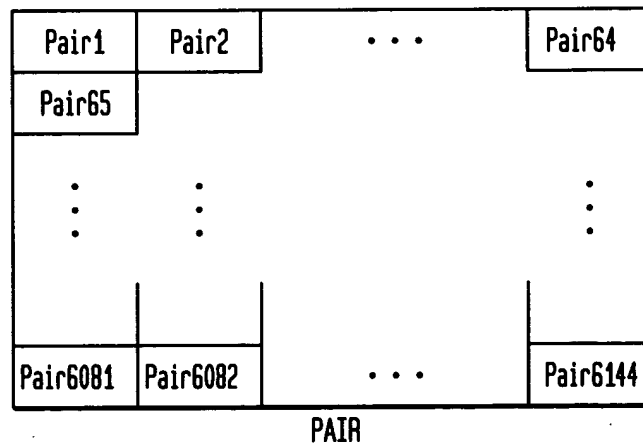
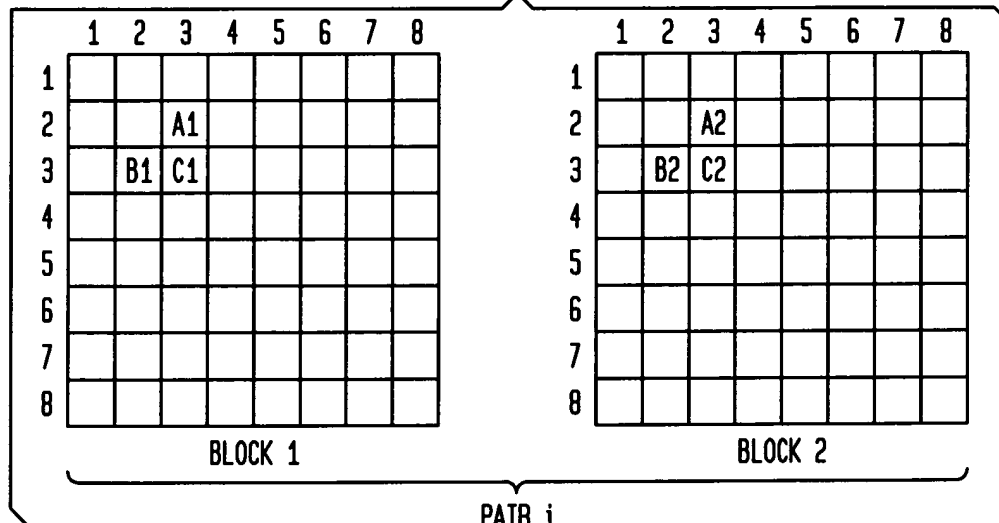




FIG. 10



PAIR i
FIG. 11A

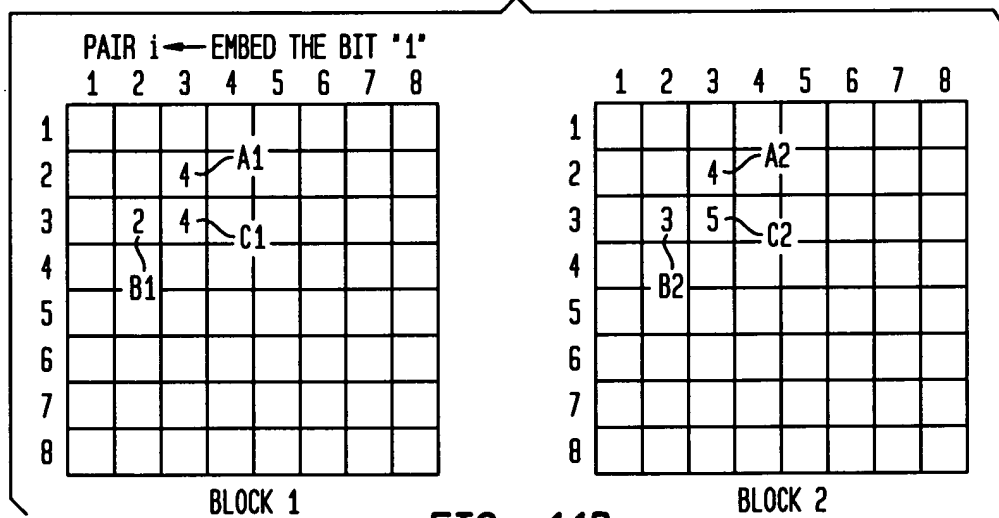
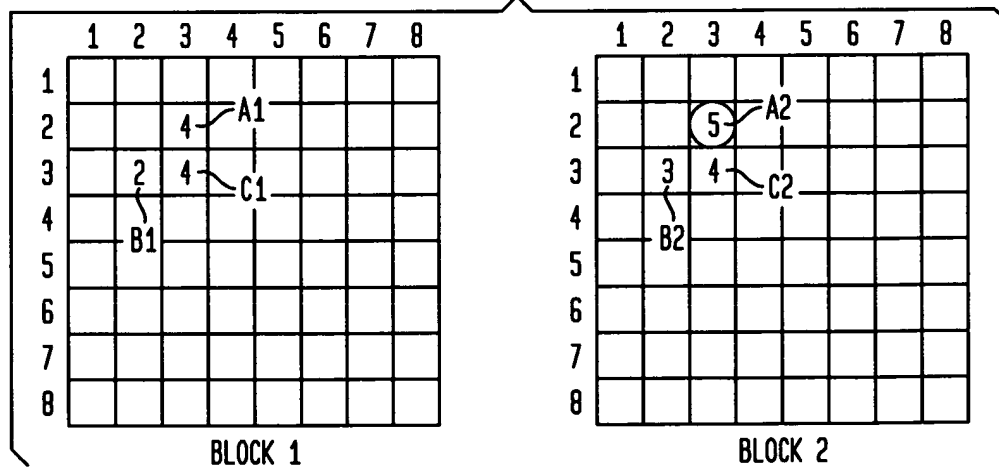


FIG. 11B



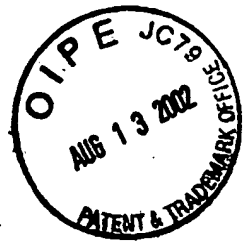


FIG. 12

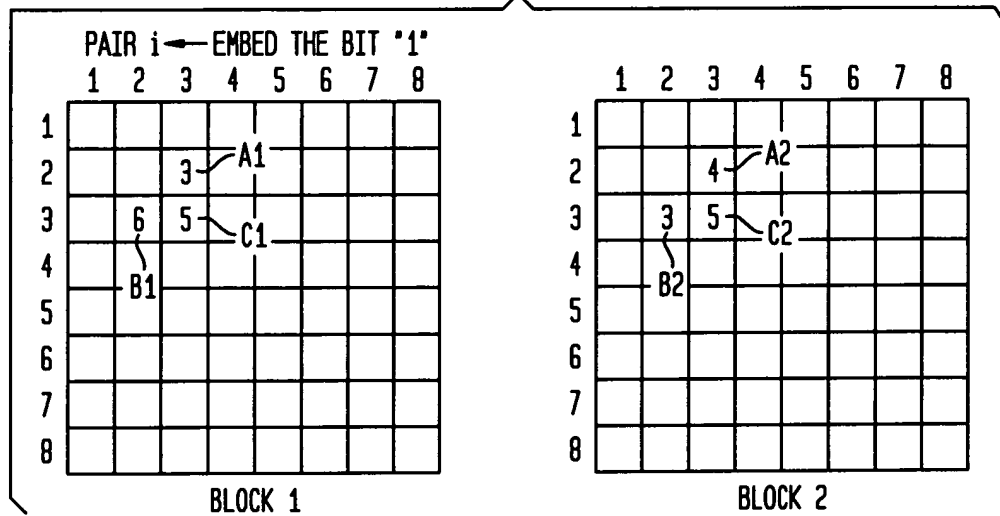


FIG. 13A

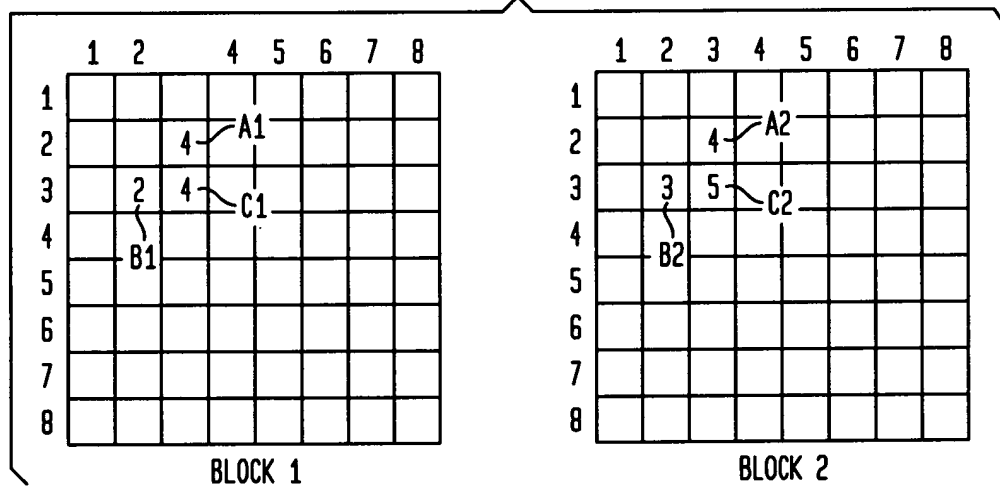
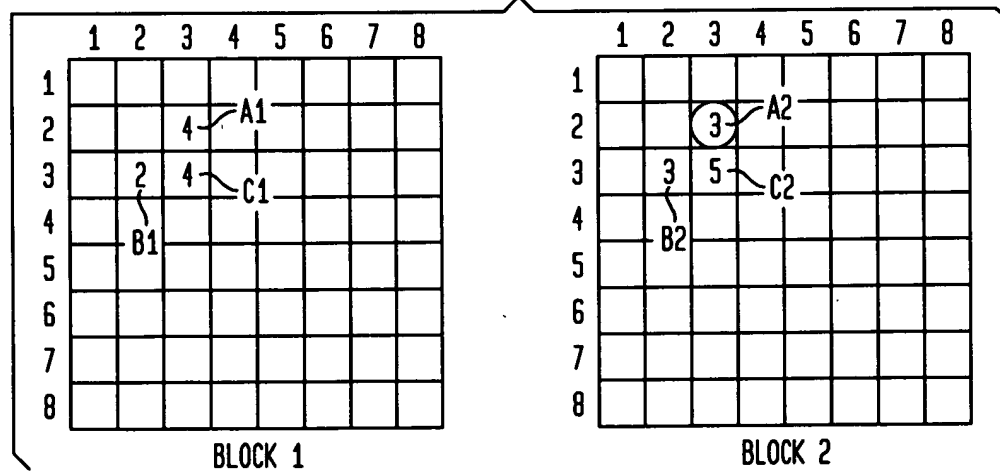


FIG. 13B





9/24
JP9-1999-0060-US1

FIG. 14

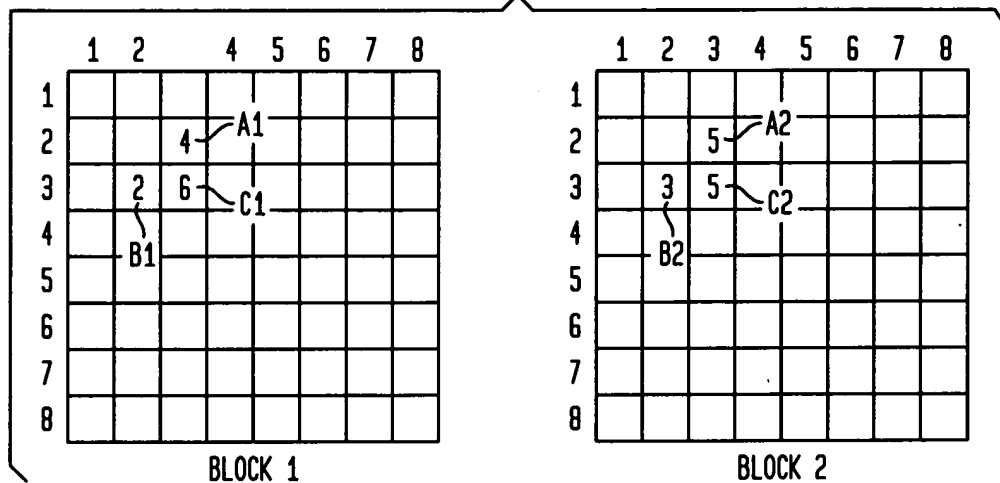


FIG. 15

DCT BLOCK PAIR NO.	BLOCK 1 COEFFICIENT			BLOCK 2 COEFFICIENT			EMBEDDING DATA'S BIT NO.	EMBEDDING DATA ALLOCATION
	A1	B1	C1	A2	B2	C2	(1~96)	
1	1	5	2	5	6	3	31	1
2	5	8	9	2	5	5	21	0
3	2	10	9	5	1	2	18	1
4	1	11	5	5	3	20	65	0
5	10	2	25	1	3	24	7	1
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
160	5	30	11	6	9	10	7	1
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
6144	51	20	11	3	19	15	34	1

FIG. 16

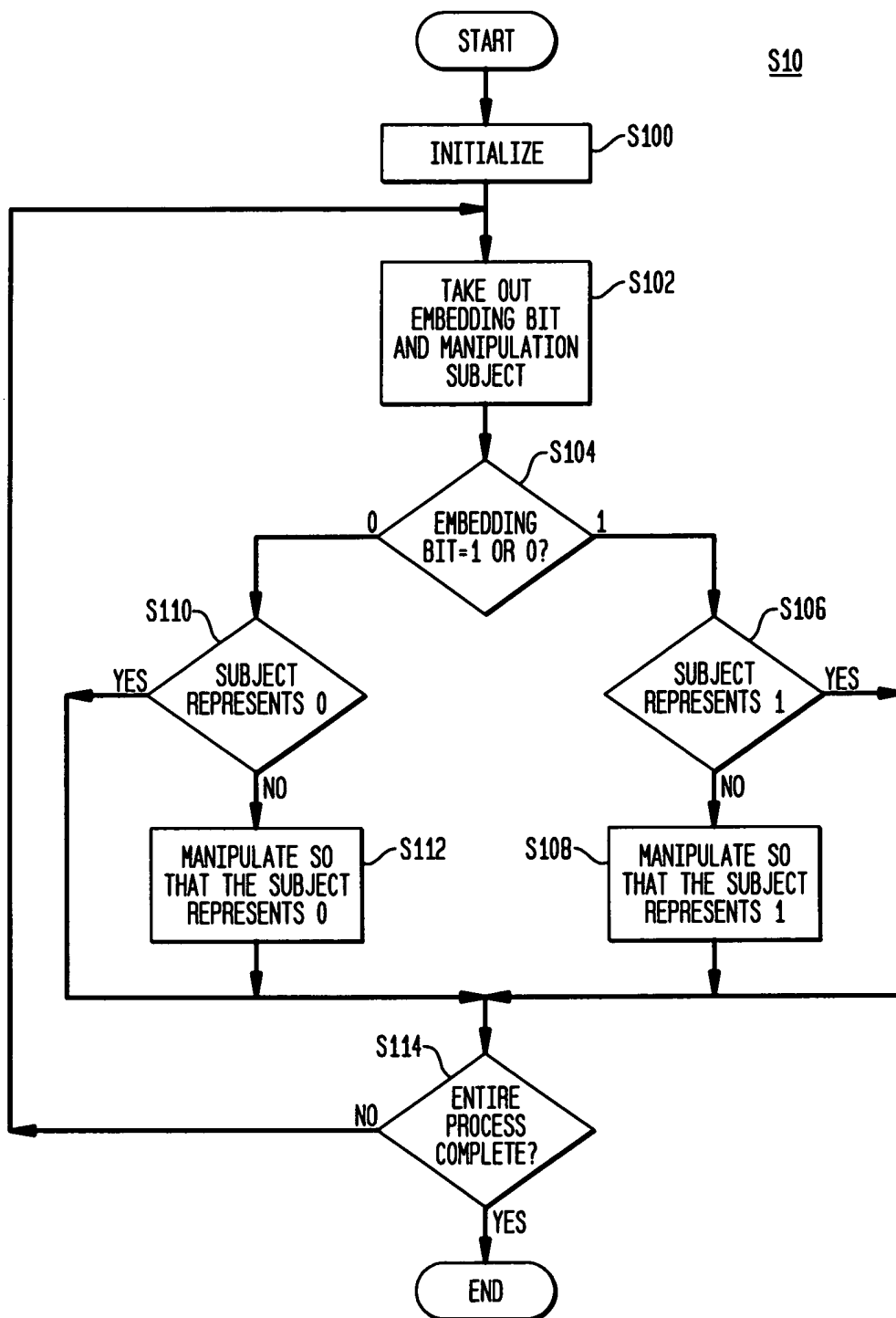




FIG. 17

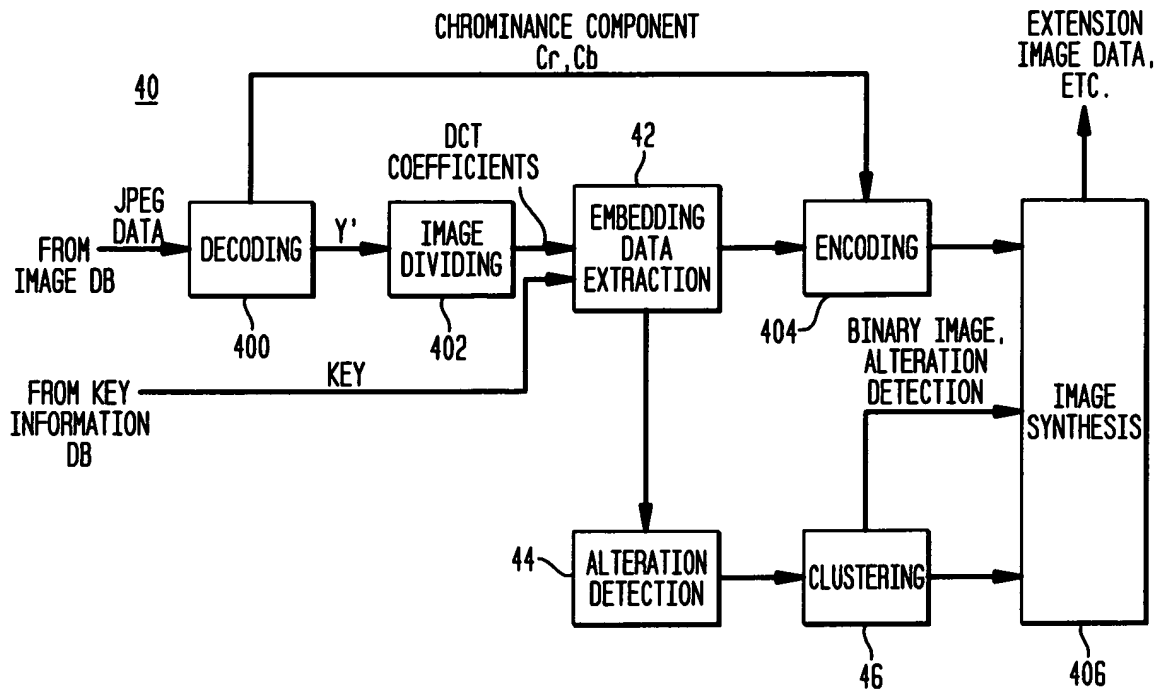
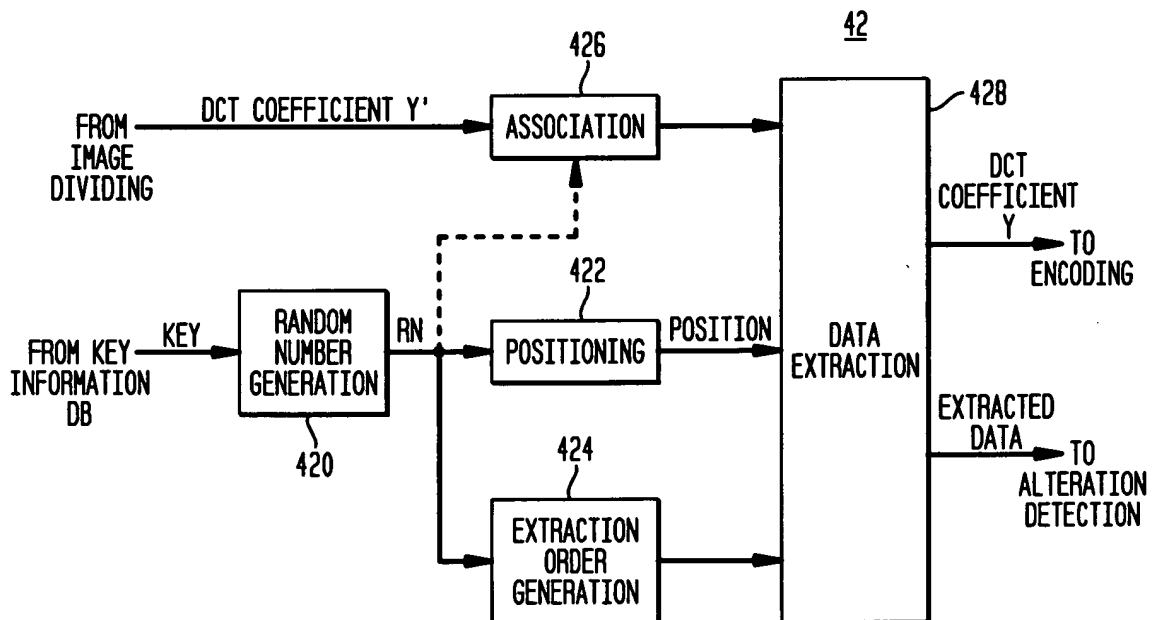


FIG. 18





12/24
JP9-1999-0060-US1

FIG. 19A

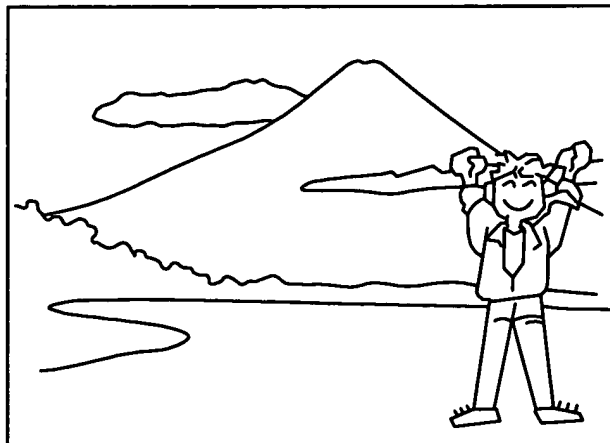


FIG. 19B

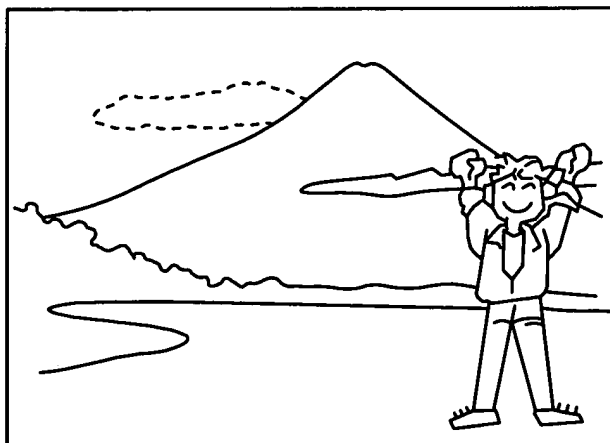
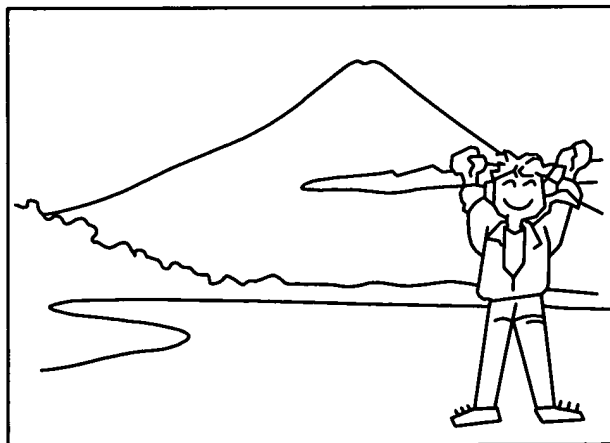


FIG. 19C





13/24
JP9-1999-0060-US1

FIG. 20

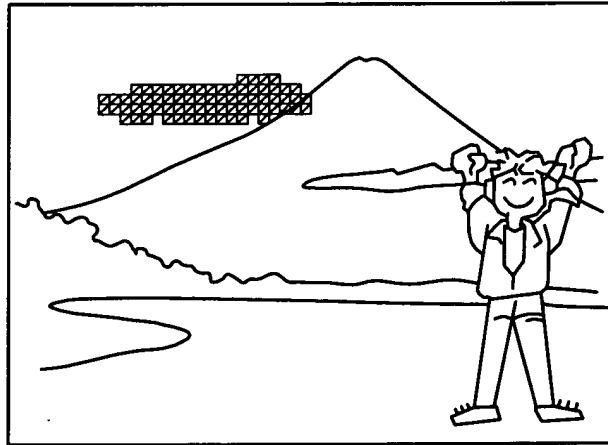


FIG. 21

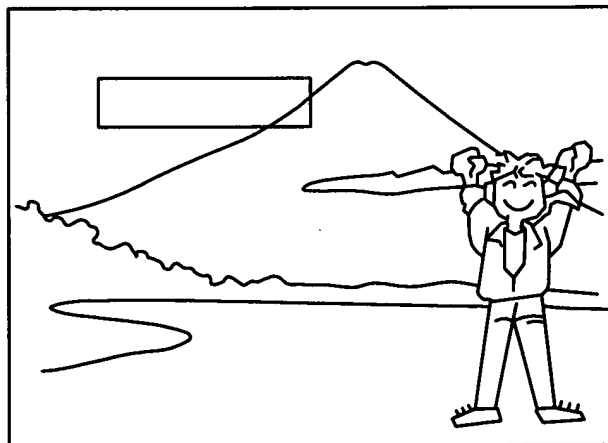




FIG. 22

	1	2	3	4	5		96
PAIRS 1-96	PAIR11 1	PAIR5 0	PAIR31 1	PAIR9 1	0	. . .	1
PAIRS 97-192	PAIR99 1	PAIR126 0	PAIR150 1	PAIR153 1	0	. . .	1
PAIRS 193-288	1	0	1	1	0	. . .	1
PAIRS 289-384	1	0	1	1	0	. . .	1
.
.
.
PAIRS 6049-6144	1	0	1	0	0	. . .	1
EXTRACTION RESULT	1	0	1	1	0	. . .	1

REPEAT
64 TIMES



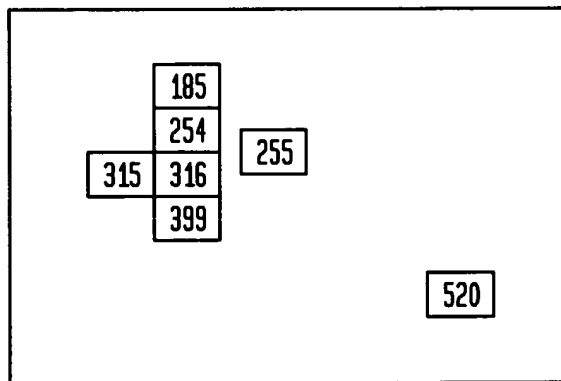
FIG. 23

DETECTED EMBEDDING DATA'S BIT NUMBER

	1	2	3	4	5		96
PAIRS 1-96	BLOCK 11 1 A	BLOCK 5 0 B	BLOCK 31 1 A	BLOCK 9 1 A	0 B	...	1 A
PAIRS 97-192	BLOCK 99 1 A	BLOCK 126 0 B	BLOCK 150 1 A	BLOCK 153 1 A	0 B	...	BLOCK 185 0 B
PAIRS 193-288	1 A	0 B	1 A	BLOCK 255 0 B	0 B	...	BLOCK 254 0 B
PAIRS 289-384	1 A	BLOCK 315 1 A	1 A	C	BLOCK 316 1 A	...	1 A
PAIRS 385-480	BLOCK 399 0 B	BLOCK 400 C	1 A	1 A	0 B	...	1 A
PAIRS 481-576	1 A	0 B	1 A	1 A	BLOCK 520 1 A	...	1 A
:	:	:	:	:	:		:
EXTRACTION RESULT	1	0	1	1	0	...	1

☐ MISMATCH

FIG. 24





16/24
JP9-1999-0060-US1

FIG. 25A

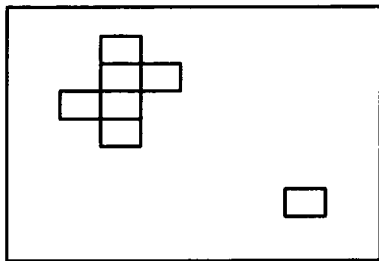


FIG. 25B

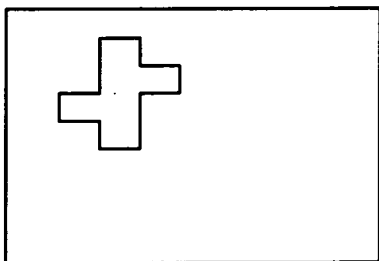


FIG. 25C

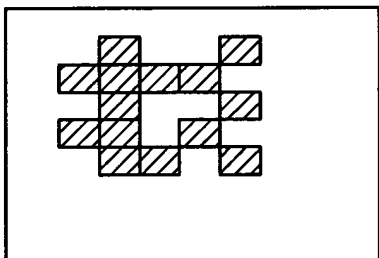
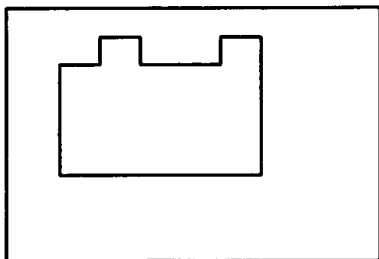


FIG. 25D





17/24
JP9-1999-0060-US1

FIG. 26

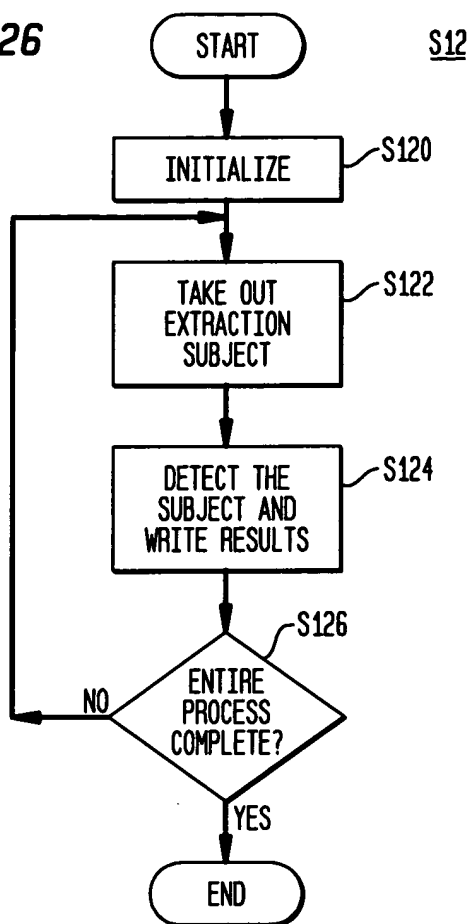
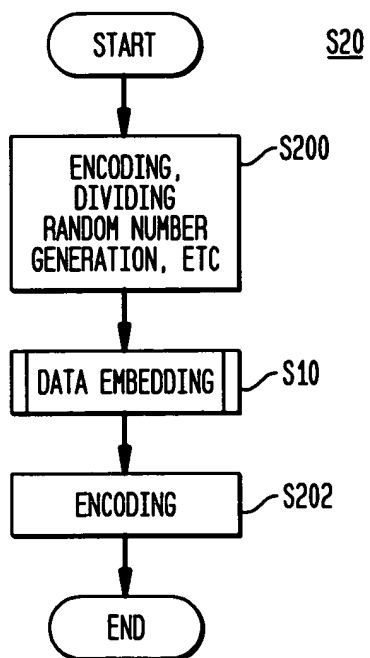
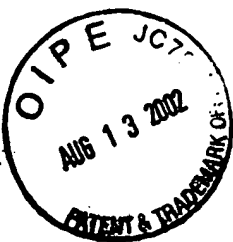


FIG. 27





18/24
JP9-1999-0060-US1

FIG. 28

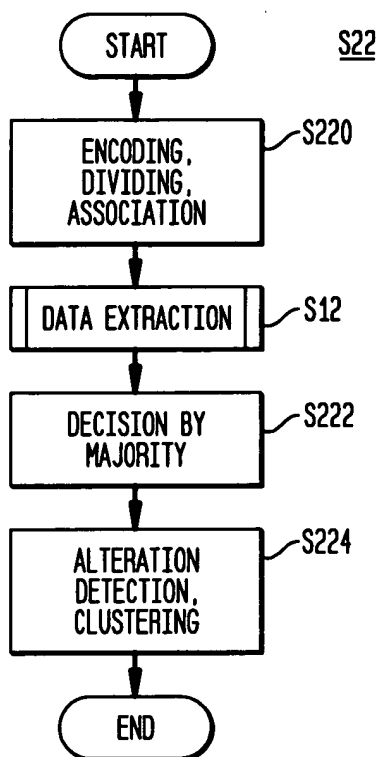


FIG. 29

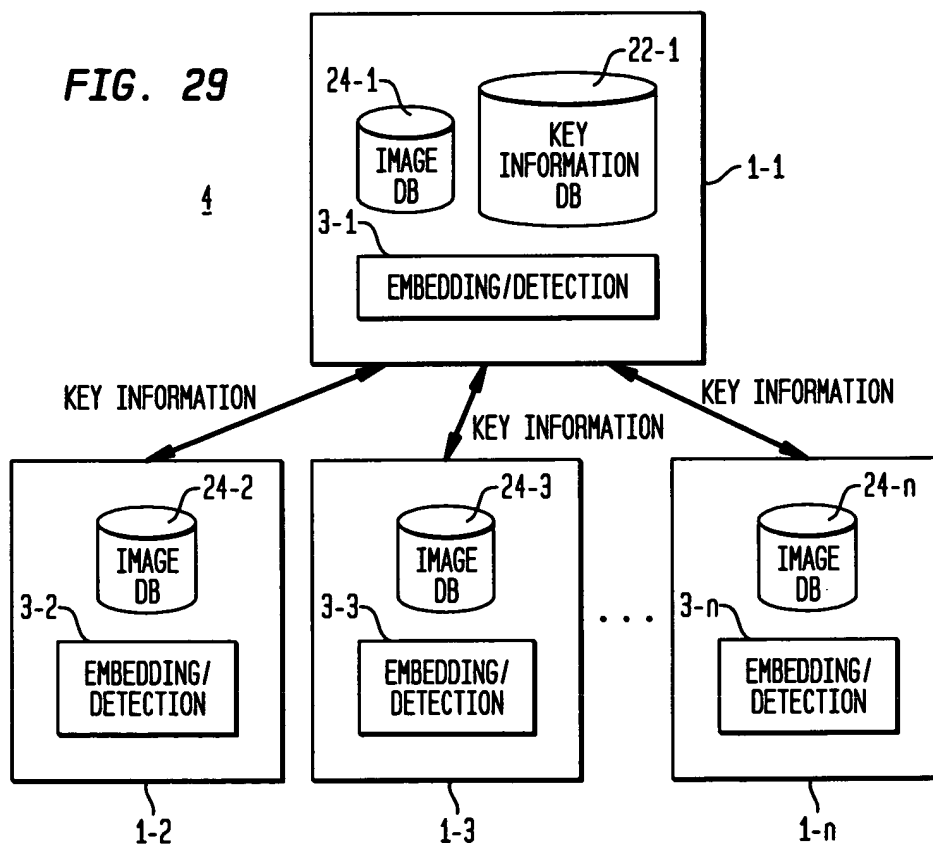


FIG. 30

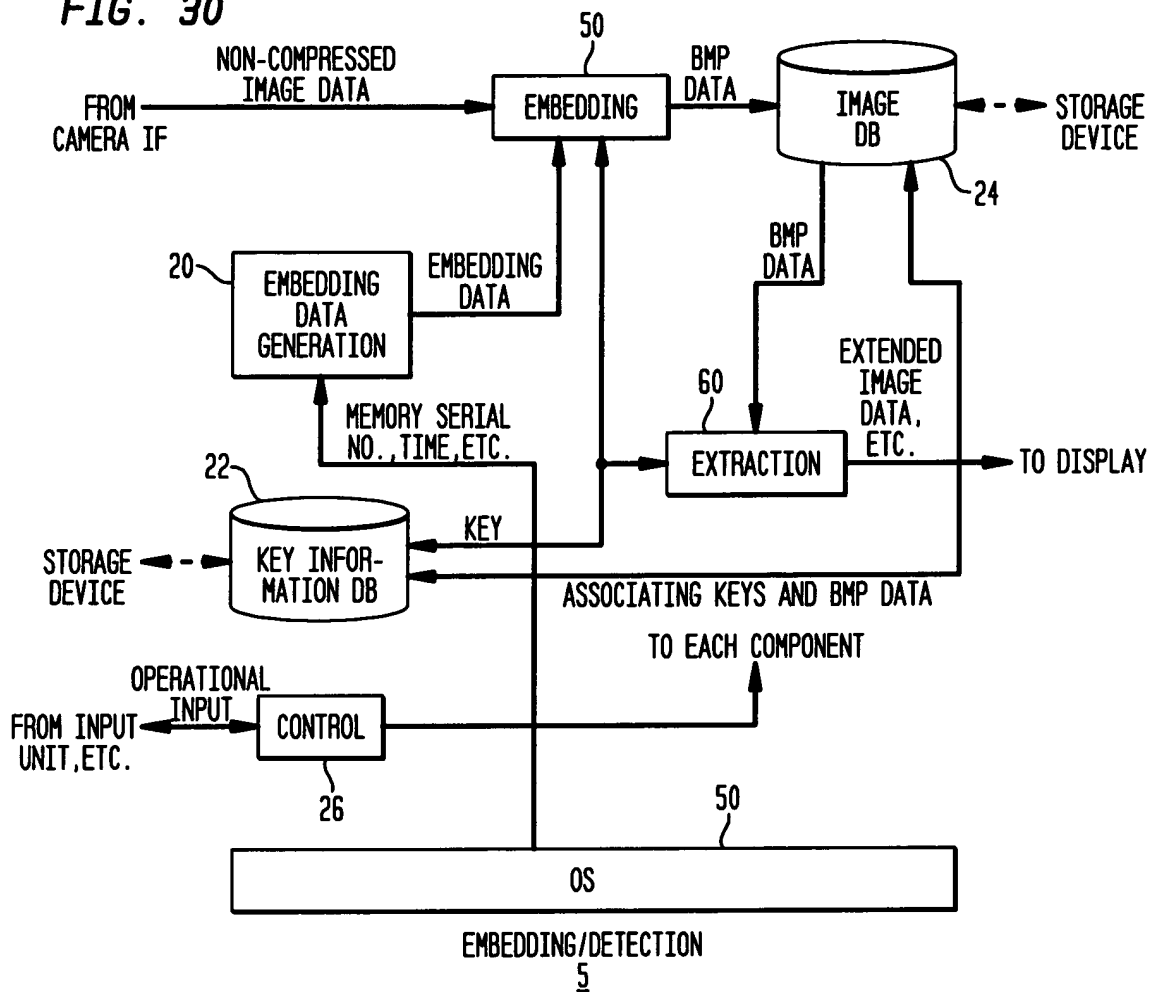
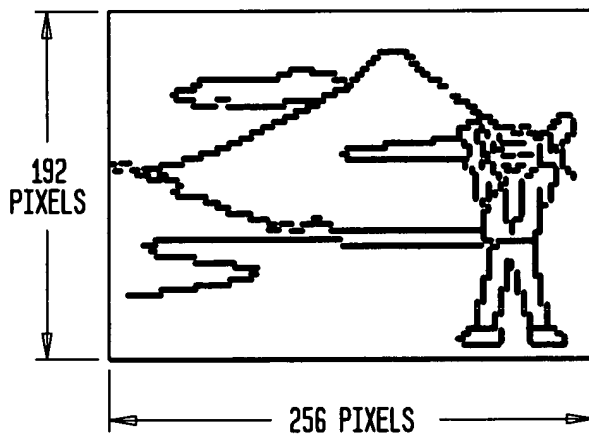


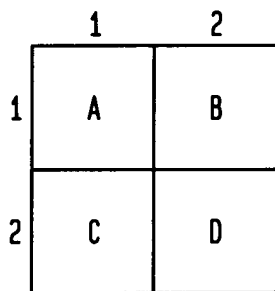
FIG. 31





20/24
JP9-1999-0060-US1

FIG. 32



2 X 2 PIXEL
BLOCK

FIG. 33

BLOCK 1	BLOCK 2	...	BLOCK 128
BLOCK 129			
⋮	⋮		⋮
BLOCK 12161	BLOCK 12162	...	BLOCK 12288



FIG. 34

2 X 2 PIXEL BLOCK NO.	2 X 2 PIXEL BLOCK'S PIXEL VALUE				EMBEDDING DATA'S BIT NO.	EMBEDDING DATA ALLOCATION
	A	B	C	D	(1~96)	
1	1	5	2	5	31	1
2	5	8	9	2	21	0
3	2	10	9	5	18	1
4	1	11	5	5	65	0
5	10	2	25	1	7	1
⋮	⋮	⋮	⋮	⋮	⋮	⋮
160	5	30	11	6	7	1
⋮	⋮	⋮	⋮	⋮	⋮	⋮
12288	51	20	11	3	34	1



22/24
JP9-1999-0060-US1

FIG. 35A

	1	2
1	13 A	52 B
2	164 C	0 D

FIG. 35B

	1	2
1	12 A	52 B
2	164 C	0 D

FIG. 36

	1	2
1	166 A	252 B
2	58 C	2 D



FIG. 37A

	1	2
1	21 A	101 B
2	253 C	0 D

FIG. 37B

	1	2
1	21 A	101 B
2	253 C	1 D

FIG. 38

	1	2
1	11 A	57 B
2	89 C	121 D



FIG. 39

DETECTED EMBEDDING DATA'S BIT NUMBER

	1	2	3	4	5		96
PAIRS 1-96	BLOCK 11 1 A	BLOCK 5 0 B	BLOCK 31 1 A	BLOCK 9 1 A	0 B	...	1 A
PAIRS 97-192	BLOCK 99 1 A	BLOCK 126 0 B	BLOCK 150 1 A	BLOCK 153 1 A	0 B	...	BLOCK 185 0 B
PAIRS 193-288	1 A	0 B	1 A	BLOCK 255 0 B	0 B	...	BLOCK 254 0 B
PAIRS 289-384	1 A	BLOCK 315 1 A	1 A	C	BLOCK 316 1 A	...	1 A
PAIRS 385-480	BLOCK 399 0 B	BLOCK 400 C	1 A	1 A	0 B	...	1 A
PAIRS 481-576	1 A	0 B	1 A	1 A	BLOCK 520 1 A	...	1 A
:	:	:	:	:	:		:
EXTRACTION RESULT	1	0	1	1	0	...	1

REPEAT 128 TIMES

☐ MISMATCH